



COMPARATIVE STUDY OF DIFFERENT PEARL NUCLEI IMPLANTATION ON THE FRESH WATER MUSSELS IN DISTRICT BALESHWAR, ODISHA.

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ABSTRACT

Fresh water pearl culture is growing as a source of employment and income in many District, Baleshwar, Odisha. I have initiated fresh water pearl culture projects in recent years. In India the institute of fresh water aquaculture is carrying out research on identification of suitable local pearl mussel species, definition appropriate surgical implantation procedure, developing post operative care procedure and captive pond culture of mussels. Table 5.1 shows that the water parameters like temperature (30.2), oxygen (5.9), PH (7.4), alkalinity (162) and calcium (51) in rearing period have values in 8 weeks. Table 5.2 Shows The *Lamellidens marginalis* species observe the average length 8.0 mm, No. of mussels 55, survivability 100, % of pearl bearing mussel 92, Maximum no. of pearl 10 and Average no. of pearl observed 6. Table 5.3 shows the total number of nucleus collected for culture 11 which have designer, oval, round and half round shape (each no. of nucleus 10) by dental and zirconite powders and shell powder rounded which have no. of 11 nucleus.

KEY WORDS: Pearl, Mussels, surgical implantation procedure, developing post operative care procedure and captive pond culture.

INTRODUCTION:

The fee of a pearl is decided via way of means of a variety of things which the GIA 7 refers to because of the fee factor. The machine is used the world over to explain and classify pearls and hence presents an typical and broadly used approach for the pearl exchange and the give up client to choose and evaluate pearls and their traits. These traits may also have an effect on their splendor and durability, and recollect size, shape, color, luster, surface, nacre great and matching (Gemological Institute of America, 2011). Of the ones considerations, period is probably the most essential factor with luster close to behind, all exclusive factors being same due to the fact that no character appreciates a silly or useless pearl. Perfectly round pearls are very rare, specifically almost about natural pearls, and eventually are more desirable, while pearls with perfect surfaces are also the exception in choice to the rule. On the alternative hand, a pearl's nacre high-satisfactory also can moreover immediately have an impact on its durability, specially in cultured pearls in which the nacre may be very thin and could result in damaged surfaces, and in some respects relates to the following luster. When it entails color, pearls with terrific and well-saturated, pink, yellow, orange, gray, or black appearances are rarer than the identical antique white to cream range, and therefore their desirability increases. Matching is the very last price factor stated and is critical whilst or more pearls are applied in an item of jewelry or layout (Gemological Institute of America, 2011). Of course, ideally all of the factors are judged using pearls which is probably unaltered in any way apart from routine cleaning, tumbling and buffing. However, most pearls withinside the trade go through a sequence of various techniques to beautify their appearance and increase their marketability. Nowadays, numerous techniques are used to beautify this marketability. Some are proprietary and therefore are not disclosed. Some strategies are considered acceptable, while others are certainly considered treatments (Shor, 2007) and should be declared steady with America Federal Trade Commission's (FTC) guidelines (Federal Trade Commission, 2018). Most of the pearls withinside the supply chain are robotically stepped forward using methods after harvesting together with maeshori and bleaching which is probably extensively used for primary cleaning and putting off ground impurities (Akamatsu, pers. comm. 2007). Maeshori is normally completed on most cultured pearls; the method typically uses a methyl alcohol solvent to clean the ground and beautify the luster simultaneously (Akamatsu, pers. comm., 2007; McClure et al., 2010). Bleaching is considered the best treatment as many cultured pearls are robotically bleached, i.e. akoya cultured pearls and freshwater cultured pearls, and it is even frequently applied to natural pearls withinside the Middle East and India (author NS experience). The method typically uses hydrogen peroxide with heat and/or slight to cast off ground impurities and lighten/whiten the color (McClure et al., 2010).

OBJECTIVE:

- Our aim to save the most valuable pearls occur spontaneously in the wild, but are extremely rare.
- These wild pearls are referred to as natural pearls.
- To increase the productivity of pearls and have high sources of economic value.

METHODOLOGY:

In nature, a pearl is framed every time an unusual molecule via way of means of hazard is going into the institution of mussel and the mussel cannot toss that out and on 2nd idea makes a glowing overlaying at the molecule layer via way of means of layer on this test take time months. As a cultivating practice, the fresh-water pearl lifestyle pastime consists of six enormous advances included:-

1. Collection of mussels The pattern of sparkling water mussels accumulated in district, Baleshwar, Odisha The strong mussels should be accumulated bodily from the brand new water frame like lake and saved in cans that have water.
2. Pre operative conditioning for 2-three days. The pre operative conditioning allows in weakening of adductor muscle groups for smooth coping with at some stage in surgery. three. Surgery Depending at the vicinity of surgery, the implantation is of 3 steps- 1) Mantle hollow space implantation, 2) Mantle tissue implantation and three) Gonadal.

The key uncooked substances at some stage in the surgical implantation are beads or nuclei, which might be normally crafted from mollusk shell or different calcareous substances. Mantle hollow space implantation:- In this procedure spherical (4-eight mm diameter) or designed beads are inserted into the mantle hollow space place of mussel after commencing the 2 valves of animal and keeping apart cautiously the mantles of anterior facet from the shell via way of means of assist of surgical set. Implantation may be achieved in mantle cavities of each valves. In case of implantation of designed beads care need to be that the layout component faces the mantle. After putting the beads in favored vicinity the gaps created at some stage in implantation need to be closed via way of means of pushing the mantle onto the shell. Mantle Tissue Implantation:- Here the mussels are divided into groups: The Donor and The Recipients mussels.

The 1st step on this system is guidance of graft (small piece of mantle tissue). This is achieved via way of means of getting ready a mantle ribbon (a strip of mantle alongside the ventral facet of the mussel) from a donor mussel, that's sacrificed, and reducing that into small pieces. The implantation is achieved on recipient mussel. In the nucleated approach a graft piece observed via way of means of small nucleus is brought withinside the pockets. In each the manufacturers care need to be taken that graft or nucleus does now no longer pop out of the pocket. Implantation may be achieved at mantle ribbon of each valves.

Gonadal Implantation:- The system additionally entails guidance of graft just like mantle tissue approach. 1st a reduce is made at fringe of the gonad of the mussel. Then a graft is inserted in to the gonad observed via way of means of nucleus in order that nucleus and graft are in near contact. Care need to be that nucleus touches the outer epithelial layer of the graft and the gut isn't always reduce at some stage in the surgery.

Post-Operative Care Implanted mussels are saved in post-operative care unit in nylon luggage for ten days with antibiotic remedy and deliver of herbal food. The gadgets need to be each day tested and useless mussels and those that reject nucleus need to be removed. Pond Culture After post-operative care the implanted mussels need to be stocked withinside the ponds via way of means of

maintaining them in nylon luggage and placing from bamboo and positioned in ponds at one meter depth. The pond need to be periodically fertilized with natural manure and inorganic fertilizers to preserve the plankton productivity. Periodically checking of mussels with elimination of useless ones and cleansing of luggage need to be executed all through the lifestyle period. Pearl Harvest The mussels need to be harvested on the quit of the lifestyle period. The person pearls may be taken out from the mantle tissue or gonad of the stay mussels. The mussels are sacrificed in case of mantle hollow space approach. The product achieve via extraordinary surgical implantation approach vary. In the mantle hollow space approach those are shell connected 1/2 of spherical in tissue approach as unattached small irregular or spherical pearls whilst in gonadal approach as unattached large abnormal or spherical pearls.

RESULT, CONCLUSIONS AND SUGGESTION:

Table -5.1 showed the water quality boundaries of raising water. Temperature of water was appropriate and in ideal reach for pearl arrangement. Oxygen, pH and alkalinity likewise influence the pearl development, which were in appropriate reach. Calcium is the most fundamental component to pearl culture, as calcium carbonate is the significant part of both the mussel's and pearl. Mussel and pearl creation rely upon absorption of calcium. It is suggested that calcium content of raising water ought to be north of 10 mg/l for better mussel development and pearl creation (Dan et al. 2001).

Table 5.1: Water quality parameters in the pond during the rearing period (two months).

S. No.	Parameters	Rearing Period(Two Weeks)				
		0	2	4	6	8
1	Temperature (°C)	26.5	26.4	28.0	29.1	30.2
2	Oxygen (mg/l)	4.2	4.8	5.0	5.2	5.9
3	PH	7.4	7.1	7.2	6.0	7.4
4	Alkalinity (mg/l)	142	150	155	160	162
5	Calcium (mg/l)	42	40	50	55	51

Table 5.1 shows that the water parameters like temperature(30.2), oxygen(5.9), PH(7.4), alkalinity (162)and calcium (51) in rearing period have values in 8 weeks.

Table 5.2: Growth of pearl and survival of mantle tissue transplantation mussels after 2 months rearing in pond.

S. No.	Species Name	Average length (mm)	No. of mussels	Survivability	% of Pearl bearing mussels	Maximum no. of pearl/mussels	Average no. of Pearl/mussels
1	Lamellidens marginalis	8.0	55	100	92	10	6

Table 5.2 Shows The Lamellidens marginalis species observe the average length 8.0 mm, No. of mussels 55, survivability 100, % of pearl bearing mussel 92, Maximum no. of pearl 10 and Average no. of pearl observed 6.

Table 5.3: Dics the nucleus collected for the culture are:

Made from	No. of Nucleus	Shape
Dental powder	10	Designer
	10	Oval
	10	Round
	10	Half Round
Zeronite powder	10	Designer
	10	Oval
	10	Round
	10	Half Round
Shell powder	11	Rounded

Table 5.3 shows the total number of nucleus collected for culture 11 which have designer, oval, round and half round shape (each no. of nucleus 10) by dental and zeronite powders and shell powder rounded which have no. of 11 nucleus.

The current review was for a brief period to explore the pearl development in mussels. Further, long haul study is important to notice the size and nature of pearl delivered in mussels.

CONCLUSION:

The improvement of sparkling water pearl way of life era in India. However large development has been made in regions inclusive of identity of appropriate neighborhood pearl mussels species and defination of suitable surgical implantation procedure. Table 5.3 shows the total number of nucleus collected for culture 11

which have designer, oval, round and half round shape (each no. of nucleus 10) by dental and zeronite powders and shell powder rounded which have no. of 11 nucleus. Short time period submit operative care of the implanted mussels minimizing nucleus and graft rejection charges and long time captive pond way of life implanted mussels till harvest. Concerted interest is likewise being paid to demonstration and schooling to broaden technical knowledge within side the vicinity to make bigger the adoption of the sparkling water pearl era.

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